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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,135	06/01/2006	Steffen Clarence Pauws	NL 031435	2675

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BRIARCLIFF MANOR, NY 10510

EXAMINER
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VO, CECILE H

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/596,135	<b>Applicant(s)</b> PAUWS, STEFFEN CLARENCE	
	<b>Examiner</b> /Cecile Vo/	<b>Art Unit</b> 2169	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This is a non-final Office Action in response to the present US application number 10/596,135, filed on 06/01/2006, which is a national stage entry of PCT/IB04/52499 International Filing Date: 11/22/2004, which claims foreign priority of EP 03104572.7, filed on December 08, 2003.

2. Claims 1-12 are presented for examination, with claim 1 being independent.

### *Priority*

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Claim Objections*

4. Claims 2-10 are objected to because of the following informalities: the preamble "*A method of searching for a query string*" of the claims should be change to --**The** method of searching **for a match** for a query string"--.

5. It is unclear if Applicant intends for claim 11 to be an independent or dependent claim. Examiner suggests Applicant should transition claim 11 into independent format or either reword claim 11 into a dependent claim format.

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6. Claim 12 is objected to because of the following informalities: The use of number (i.e. 122, 132, 114, 116, 117 and 118) to association the term with the figures is unclear and confusing to the examiner what Applicant is referring to. The numbers should be deleted.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1, 6-8 and 10-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the database" in line 6; "*the search results*" in line 8; and the limitation "*the respective sub-strings*" in lines 8-9. There is insufficient antecedent basis for these limitations in the claim.

Claim 6 recites the limitation "*the corresponding sub-string*" in line 11. There is insufficient antecedent basis for this limitation in the claim.

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Regarding claim 7, the following limitation is vague: "*the step of estimating how many (Ns) sub-strings*". There is insufficient antecedent basis for these limitations in the claim.

Claim 8 is vague because the term "*using a classification algorithm for based on the classification criteria detecting a change in query input modality*" is unclear, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim 11 recites "*A computer program product operative to cause a processor to execute the steps of the method as claimed in claim 1*". The term appears to be dependent of the method in claim 1. However, claim 11 is rendered as indefinite because this claim fails to further define the boundaries to of a method or apparatus claim.

### ***Claim Rejections - 35 USC § 101***

9. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claim 11 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 11 appears to claim a program, e.g., a computer program product. The program as recited in claim 11 is program listing and non-statutory<sup>1</sup>.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 1-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Jagadish et al. (*hereinafter referred to as Jagadish*), US Patent Number 7,010,522 B1.

Regarding claim 1, Jagadish discloses a method of searching for a match for a query string, that represents an audio fragment, in a melody database; the method including:

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<sup>1</sup> 2106.01 (I) Program listing:

Similarly, computer programs claimed as computer listings per se, i.e., the descriptions or expressions of the programs, are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035. Accordingly, it is important to distinguish claims that define descriptive material per se from claims that define statutory inventions.

decomposing the query string into a sequence of a plurality of query sub-strings (e.g. with the database string information itself, the input substring query is first decomposed into a plurality of q-grams (as *sub-strings*), col. 4, lines 8-10);

for each sub-string, independently searching the database for at least a respective closest match for the sub-string (e.g. A matching routine is performed to retrieve all value lists from the B-tree index with corresponding values to the input q-grams, col. 4, lines 10-13); and

in dependence on the search results for the respective sub- strings, determining at least a closest match for the query string (e.g. by retrieving the value list for each q-gram of the query string, it is possible to derive a lower bound for the necessary number of matching q-grams that a retrieved string-identifier should have with the query string in order to be considered as a candidate match, col. 6, lines 26-30).

Regarding claim 2, Jagadish further discloses the step of decomposing the query string includes decomposing the query string into sub-strings that each substantially correspond to a phrase (e.g. Fig 3a and 3b contains the set of position q-grams for the string).

Regarding claim 3, Jagadish further discloses a method including enabling a user to input the query string mixing a plurality of query input modalities (col. 3, lines 50-52 and col.4, lines 4-5).

Regarding claim 4, Jagadish further discloses at least one of the query input modalities is one of: humming, singing, whistling, tapping, clapping, percussive vocal sounds (e.g. string data is ubiquitous. For example, product catalog databases (for books, music, software and the like, col. 1, lines 15-20).

Regarding claim 5, Jagadish further discloses a change in query input modality substantially coincides with a sub-string boundary (e.g. the "edit distance" between two strings is defined as the minimum number of edit operations ("insertion", "deletion", "substitution"), of single characters, needed to transform the first string into the second string, col. 4, lines 40-43).

Regarding claim 6, Jagadish further discloses the step of decomposing the query string includes:

estimating how many (Ns) sub-strings are present in the query (col. 4, lines 36-39);

dividing the query string in Ns sequential sub-strings; each sub-string being associated with a respective centroid that represents the sub-string (e.g. query strings Q is decomposed into  $k+1$  pieces and each piece is matched exactly against the collection of q-grams, col. 5, lines 41-43. Wherein, each piece has a length as *centroid*, col. 5, lines 42-45);

iteratively:



for each centroid determining a respective centroid value in dependence on the corresponding sub-string (e.g. Let  $G_Q$  be defined as the set of q-grams for a substring query  $Q$  (of length  $m$ ), col. 6, lines 46-47. Wherein, length as *centroid*); and

determining for each of the sub-string corresponding sub-string boundaries by minimizing a total distance measure between each of the centroids and its corresponding sub-string (col. 6, lines 47-55) ;

Regarding claim 7, Jagadish further discloses the step of estimating how many ( $N_s$ ) sub-strings are present in the query string includes dividing a duration of the audio fragment by an average duration of a phrase (for best understanding, e.g. col. 4, lines 36-39).

Regarding claim 8, Jagadish further discloses the step of decomposing the query string includes retrieving for each of the input modalities a respective classification criterion and using a classification algorithm for based on the classification criteria detecting a change in query input modality (e.g. Fig. 3, col. 3, lines 56-59).

Regarding claim 9, Jagadish further discloses a method including constraining a substring to fall within two successive changes in query input modality (e.g. Fig. 3a and 3b).

Regarding claim 10, Jagadish further discloses the step of searching for each sub- string in the database includes generating for the sub-string an N- best list ( $N \geq 2$ ) of the N most closest corresponding parts in the database with a corresponding measure of resemblance (e.g. For each q-gram, the B-tree index is queried and the value lists are retrieved, col. 7, lines 44-45) ; and performing the determining of the at least closest match for the query string based on the measures of resemblance of the N-best lists of the sub-strings (col. 7, lines 49-54).

Regarding claim 11, Jagadish further discloses a computer program product operative to cause a processor to execute the steps of the method as claimed in claim 1 (col. 3, lines 36-43).

Regarding claim 12, Jagadish discloses a system for searching for a query string, that represents an audio fragment, in a melody database; the system including:

an input (122, 132) for receiving the query string from a user (e.g. input device 14 in Fig. 1);

a melody database (114) for storing respective representations of plurality of audio fragments (e.g. Storage device 18 in Fig. 1);

at least one processor (116) for, under control of a program (e.g. Processor 16 in Fig. 1),

- decomposing (117) the query string into a sequence of a plurality of query sub-strings (col. 4, lines 8-10);

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- for each sub-string, independently searching (118) the database for at least a respective closest match for the sub- string; and in dependence on the search results for the respective sub-strings, determining (119) at least a closest match for the query string (col. 4, lines 10-13 and col. 6, lines 26-30).

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to /Cecile Vo/ whose telephone number is 571-270-3031. The examiner can normally be reached on Mon - Thu (8:30AM - 6:00PM EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ali can be reached on 571-272-4105. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

December 07, 2007

/Cecile Vo/  
Patent Examiner  
Art Unit 2169

/HPham/

  
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SUPERVISORY PATENT EXAMINER